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EXAMINER

OH, TAYLOR V

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1625

8

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/936,184

Applicant(s)

UNVERRICHT ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### ***Final Rejection***

#### **The Status of Claims**

Claims 1-31 are pending.

Claims 1-31 have been rejected.

#### **Claim Objections**

The objection of claim 23 has been withdrawn due to the modification made in the amendment.

#### **Claim Rejections-35 USC 112**

1. Applicants' argument filed 8/7/2003 have been fully considered, but they are not persuasive.

Under 35 USC 112 , first paragraph, the rejection of claims 1, 22-23, and 28-29 has been maintained due to applicants' failure to modify in the amendment.

#### **Claim Rejections-35 USC 103**

2. The rejection of Claims 1-22, 27, and 28 under 35 U.S.C. 103(a) as being unpatentable over Ruppel et al (U.S. 5,821,390) in view of Ruppel et al (U.S. 5,739,391) and Etzkorn et al (U.S. 5,198,578).

The rejection of Claims 1-22, 27, and 28 under 35 U.S.C. 103(a) as being unpatentable over Ruppel et al (U.S. 5,821,390) in view of Ruppel et al (U.S.

Art Unit: 1625

5,739,391) and Etzkorn et al (U.S. 5,198,578) has been maintained for reasons of the record in paper no. 8.

*The rejection of Claims 1, 23-24 ,29 , and 30-31 under 35 U.S.C. 103(a) as being unpatentable over Ruppel et al (U.S. 5,821,390) in view of Ruppel et al (U.S. 5,739,391), Neumann et al (U.S. 5,364,825) and Etzkorn et al (U.S. 5,198,578).*

Claims 1, 23-24 ,29 , and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruppel et al (U.S. 5,821,390) in view of Ruppel et al (U.S. 5,739,391), Neumann et al (U.S. 5,364,825) and Etzkorn et al (U.S. 5,198,578) has been maintained for reasons of the record in paper no. 8.

#### In Response to the Argument

3. The applicants argue the following issues:

1. the Ruppel employs small reactant loads in only one temperature zone, whereas the current invention uses two salt baths and two temperature zones, thus enabling high reactant loads without losing product .
2. the Ruppel discloses the fact that the temperature needs to be increased with conversion, which can be disadvantageous unlike the present invention.
3. Etzkorn et al employs one temperature zone and there are no motivation to combine the Ruppel (5,821,390) and Ruppel et al (5,739,391) and Etzkorn et al (5,198,578) to arrive at the claimed invention.
4. Neumann et al does not cure the defects of Ruppel et al (U.S. 5,821,390) in view of Ruppel et al (U.S. 5,739,391), and Etzkorn et al (U.S. 5,198,578) and none of the combinations do not result in the claimed invention.

The applicants' arguments have been noted, but these arguments are not persuasive.

First, with regard to the first argument, the Examiner has noted applicants' argument. However, Ruppel et al (U.S. 5,821,390) does disclose the process for the catalytic gas-phase oxidation of propene to acrolein in the multiple contact tube fixed-bed reactor at an elevated temperature. Also, if the acrolein is used to prepare acrylic acid by two step catalytic gas-phase oxidation of the propene, the reaction gases containing acrolein are transferred to the second oxidation step without removal of the secondary component. Ruppel et al (U.S. 5,739,391) does teach the process for the catalytic gas-phase oxidation of acrolein to acrylic acid in the multiple contact tube

Art Unit: 1625

fixed-bed reactor at an elevated temperature. In addition, Etzkorn et al (US 5,198, 578) does teach the process for oxidizing propylene to acrolein and the oxidation of propylene to acrylic acid with the specific molar ratio of molecular oxygen and propylene in two catalytic system-stages in series. Therefore, the combined processes make it possible to achieve two salt baths and two temperature zones in the process of oxidizing propene to acrylic acid.

Second, with regard to the second argument, the Examiner has noted applicants' argument. However, the claims are not directed to the advantage concerning the fixation of the reaction temperature during conversion. Therefore, this is irrelevant.

Third, with regard to the third argument, the Examiner has noted applicants' argument. However, there is a motivation to combine all the three references similar to arriving at the current invention. All the three processes are commonly involved in the process of producing the end product, acrylic acid. The Ruppel et al (U.S. 5,821,390) expressly indicates that the intermediate acrolein can be used to prepare acrylic acid by two step catalytic gas-phase oxidation of the propene, and similarly, Ruppel et al (U.S. 5,739,391) does focus the process for the catalytic gas-phase oxidation of acrolein to acrylic acid in the multiple contact tube fixed-bed reactor. Also, Etzkorn et al (US 5,198, 578) does offer the specific molar ratio of molecular oxygen and propylene in two catalytic system-stages in the process for oxidizing propylene to acrylic acid. Therefore, it would have been obvious to the skilled artisan in the art to have motivated to incorporate the teachings of the Ruppel et al (U.S. 5,821,390), along with Etzkorn's et al specific molar ratio of molecular oxygen and propylene, into the Ruppel

Art Unit: 1625

et al (U.S. 5,739,391) process of producing acrylic acid. This is because the skilled artisan in the art would expect the combined processes to be successful as shown in the Ruppel et al (U.S. 5,821,390).

Fourth, with regard to the fourth argument, the Examiner has noted applicants' argument. However, there is a motivation to combine all the four references similar to arriving at the current invention. All the four processes are commonly involved in the process of producing acrylic acid. The Ruppel et al (U.S. 5,821,390) expressly indicates that the intermediate acrolein can be used to prepare acrylic acid by two step catalytic gas-phase oxidation of the propene. Similarly, Ruppel et al (U.S. 5,739,391) does focus the process for the catalytic gas-phase oxidation of acrolein to acrylic acid in the multiple contact tube fixed-bed reactor. Also, Etzkorn et al (US 5,198, 578) does offer the specific molar ratio of molecular oxygen and propylene in two catalytic system-stages in the process for oxidizing propylene to acrylic acid. And Neumann et al does teach the application of multi-metal oxide compositions (Formula I and III) to the process of producing unsaturated carboxylic acids by the gas-phase catalytic oxidation of alkenes.

Therefore, if the skilled artisan in the art had desired to employ Neumann's et al multi-metal oxide compositions as an alternative to the Ruppel's et al metal oxide compositions, it would have been obvious to the skilled artisan in the art to have motivated to incorporate the Neumann's et al multi-metal oxide compositions, along with Etzkorn's et al specific molar ratio of molecular oxygen and propylene, into the Ruppel et al (U.S. 5,739,391) process of producing acrylic acid. This is because the

Art Unit: 1625

skilled artisan in the art would expect the combined processes to be successful as shown in the Neumann's et al process.

#### Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 703-305-0809. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alan Rotman can be reached on 703-308-4698. The fax phone numbers



Art Unit: 1625

for the organization where this application or proceeding is assigned are 703-308-2742 for regular communications and 703-305-7401 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

*Wagner ✓ SH*  
*10/19/03*

*Alan L. Rotman*

ALAN L. ROTMAN  
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